

Amendments to Claims

1. (currently amended) A method of stamping an article from an aluminum alloy sheet material, said sheet material having a thickness and a straining limit, where the shape of said article cannot be stamped into said sheet in a single stamping operation without exceeding the straining limit of the sheet at a location in said article, said sheet material being strain hardenable and having known stress/strain forming properties and being initially in a softened condition for forming by stamping, said method comprising:

predetermining, from said stress/strain forming properties and the thickness of said sheet, a preform shape that is a deformation precursor of said article shape and includes at least one region in the preform shape that is to be strained up to, but not exceeding, the straining limit of the sheet material and the strain is higher than in adjacent portions of the preform shape a strain-hardened region, and an annealing practice for re-softening the at least one region strain-hardened region of said preform shape, said preform shape and said annealing practice enabling one step stamping of said article shape from said preform shape without exceeding the straining limit of the sheet; and thereafter

stamping a blank of said sheet material into said preform shape using a punch and a forming surface tool where the at least one region is strained and formed by stretching the sheet in contact with the punch and forming tool;

annealing at least said strain-hardened region of said preform by said annealing practice; and

stamping said annealed preform to the shape of said article using a punch and a forming surface tool, the duration of said annealing step being no greater than twice the duration of either of said stamping steps.

2. (Original) A method of stamping an article as recited in claim 1 where said stamping of said preform shape, the annealing of said annealed preform and the stamping of said annealed preform to the shape of said article are performed in a continuous sequence of operations of substantially equal duration.

3. (Original) The method of stamping an article as recited in claim 1 in which the period of heating for the annealing of said preform shape is no more than fifteen seconds.

4. (Previously presented) The method of stamping an article as recited in claim 1 in which the period of heating for the annealing of said preform shape and a period for cooling of the annealed preform enables the preform stamping/preform annealing/final shape stamping sequence of steps to be performed as a continuous process sequence.

5. (Original) The method of stamping an article as recited in claim 1 in which said annealing step restores the temper of the preform stamping to the temper quality of the sheet metal material prior to said preform stamping step.

6. (Original) The method of stamping an article as recited in claim 2 in which said annealing step restores the temper of the preform stamping to the temper quality of the sheet metal material prior to said preform stamping step.

7. (Original) The method of stamping an article as recited in claim 3 in which said annealing step restores the temper of the preform stamping to the temper quality of the sheet metal material prior to said preform stamping step.

8. (Original) The method of stamping an article as recited in claim 4 in which said annealing step restores the temper of the preform stamping to the temper quality of the sheet metal material prior to said preform stamping step.

9. (Original) The method of stamping an article as recited in claim 1 in which said sheet metal material is a magnesium containing, aluminum alloy of the AA5xxx family.

10. (Original) The method of stamping an article as recited in claim 2 in which said sheet metal material is a magnesium containing, aluminum alloy of the AA5xxx family.

11. (Original) The method of stamping an article as recited in claim 3 in which said sheet metal material is a magnesium containing, aluminum alloy of the AA5xxx family.

12. (Original) The method of stamping an article as recited in claim 4 in which said sheet metal material is a magnesium containing, aluminum alloy of the AA5xxx family.

13. (currently amended) A method of stamping an automotive body panel from an aluminum alloy sheet material, said sheet material having a thickness and a straining limit, where the shape of said body panel cannot be stamped into said sheet in a single stamping operation without exceeding the straining limit of the sheet at a location in said body panel, said sheet material being strain hardenable and having known stress/strain forming properties and being initially in a softened condition for forming by stamping, said method comprising:

predetermining, from said stress/strain forming properties and the thickness of said sheet, a preform shape that is a deformation precursor of said body panel shape and includes at least one region in the preform shape that is to be strained up to, but not exceeding, the straining limit of the sheet material and the strain is higher than in adjacent portions of the preform shape a ~~strain hardened region~~, and an annealing practice for re-softening the at least one region ~~strain-hardened region~~ of said preform shape, said preform shape and said annealing practice enabling one step stamping of said body panel shape from said preform shape without exceeding the straining limit of the sheet; and thereafter

stamping a blank of said sheet material into said preform shape using a punch and a forming surface tool where the at least one region is strained and formed by stretching the sheet in contact with the punch and forming surface tool;

annealing the at least one region ~~at least said strain hardened region~~ of said preform by said annealing practice;

cooling said annealed preform; and

~~lubricating said preform; and~~

stamping said annealed preform to the shape of said body panel using a punch and a forming surface tool, the duration of each of said stamping steps and of said annealing and cooling ~~annealing, and cooling and lubricating~~ steps are managed so that said body panel is formed by said steps in a continuous process sequence.

14. (Previously presented) The method of stamping a body panel as recited in claim 13 in which said sheet metal material is a magnesium containing, aluminum alloy of the AA5xxx family.